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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,716	07/10/2003	Momoe Adachi	09792909-5650	2623

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EXAMINER	
LEE, CYNTHIA K	
ART UNIT	**PAPER NUMBER**
1745	
MAIL DATE	**DELIVERY MODE**
05/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,716	ADACHI ET AL.	
	Examiner	Art Unit	
	Cynthia Lee	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/8/2007 has been entered.

DETAILED ACTION

This Office Action is responsive to the amendment filed on 1/12/2006. Claim 5 has been amended. Claims 1-20 are pending.

Applicant's prior art arguments have been fully considered and are persuasive. However, upon further consideration, the instant claims are rejected under new grounds of rejections and thus, claims 1-20 are rejected for reasons stated herein below.

Claim Objections

Claim 11 is objected to because of the following informalities:

Claim 11 contains an improper Markush group. A proper Markush group should contain the phrase "selected from the group consisting of A, B, C, and D."

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 6-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto (WO00/33403) (equivalent document US 6824920 relied upon for English translation), in view of Fujita (WO 01/22517) (equivalent document US 6884546 relied upon for English translation).

Refer to the US document for corresponding citations herein below. Iwamoto discloses a battery comprising a cathode, an anode, and an electrolyte. The negative and positive electrodes are capable of intercalating and de-intercalating lithium (applicant's light metal). The electrolyte contains bis(1,2-benzene diolate(2-)-O,O')lithium borate (applicant's claims 1-4). The anode further contains graphite materials (applicant's claims 7, 8, and 9). The anode further contains tin, silicon, and zinc (applicant's claims 10 and 11). The electrolyte contains $LiPF_6$, $LiBF_4$, $LiN(CF_3SO_2)_2$, $LiN(C_2F_5SO_2)_2$, $LiC(CF_3SO_2)_3$, and $LiClO_4$ (applicant's claims 13-18). The electrolyte contains a polymeric compound (applicant's claim 12). Refer to 5:4-60, 6:60-65, 9:50-55, 10:5-10, 55-65.

Iwamoto does not disclose that the light metal is deposited on the anode at an open circuit voltage lower than overcharge voltage (instant claim 1). Iwamoto does not disclose a battery wherein a ratio A/B is at least 0.05 to at most 3, A being the capacity component obtained by deposition and dissolution of light metal and B being the

capacity component obtained by insertion and extraction of light metal (instant claim 20). However, Fujita teaches a negative electrode containing negative electrode material capable of occluding/releasing lithium in an ionic state and thereby, lithium metal precipitates (applicant's deposition and dissolution) in the negative electrode in a state where the open circuit voltage is lower than the overcharge voltage. In other words, lithium is occluded in an ionic state in a negative electrode material capable of occluding/releasing lithium in the beginning of charging and then lithium metal precipitates on the surface of the negative electrode material thereafter during charging. The amount of precipitation of lithium metal is preferable to be from 0.05 to 3.0 times, both inclusive, the ability of charging capacity of the negative electrode material capable of occluding/releasing lithium. Thereby, high energy density and an excellent cycle characteristic can be obtained. See Abstract and 17:65-18:30, 19:37-45. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Iwamoto's battery with the teachings of Fujita for the benefit of improving the overall performance of the battery by depositing lithium after charging.

Claims 2, 3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwamoto (WO00/33403) (equivalent document US 6824920 relied upon for English translation), in view of Fujita (WO 01/22517) (equivalent document US 6884546 relied upon for English translation) as applied to claim 1, further in view of Sasaki (JP 11-335382).

Iwamoto modified by Fujita teaches all the elements of claim 1 and are incorporated herein. Iwamoto modified by Fujita does not teach the compound as claimed in claim 5. However, Sasaki teaches an electrolyte additive lithium tris [1,2-benzenediolato (2-)-O,O']phosphate. Sasaki teaches that the lithium phosphate is high in oxidation decomposition potential and thus useful as an electrolytic component for a non-aqueous electrolytic liquid. See abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add lithium tris [1,2-benzenediolato (2-)-O,O']phosphate to the battery of Iwamoto modified by Fujita for the benefit of imparting stability at high potentials.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ckl

Cynthia Lee

Patent Examiner

SUSY TSANG-FOSTER
PRIMARY EXAMINER